A COMPARISON OF THE SPECIES COMPOSITION OF TWO TV TOWER KILLED SAMPLES FROM THE SAME NIGHT OF MIGRATION

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Large kills of passerine birds are occurring at TV towers and ceilometer beams in many locations each autumn. The potential for learning about migrations and the species involved has been well pointed out by many, especially Tordoff and Mengel (1956). Unfortunately lack of time and personnel have greatly limited the values to be obtained from such samples, and most reports have necessarily been confined to a listing of the species involved. Such species listings, however, over a period of years from different locations and from different times of the migration periods will yield a great amount of information on the timing, composition, and routes of these migratory "flocks" and of individual species. Howell (1955) compared the species composition of kills from two ceilometer beam locations in Tennessee, and Brewer and Ellis (1958) compared kills from an Illinois TV tower to other reported kills. This paper compares two TV tower kills that occurred on the same night of migration.

THE TOWERS

The two samples to be compared were killed on the night of 9–10 September 1962 at the WEAU TV tower, Eau Claire, Wisconsin, and at the KCMT TV tower, 2 miles west of Westport, Minnesota, in Stearns County.

WEAU is within the city limits. The environment at the base of the tower is mostly blacktop and mowed grass, and with the exception of rooftops, junkyard rubbish, and a busy highway, collection of fallen birds is not difficult. Collections made at WEAU are considered to represent accurately the composition of the bird kill. Birds were gathered here on the morning of 10 September 1962.

KMCT, however, rises from a dense alfalfa field. Thus there is a possibility that the brightly colored and larger birds may have been more conspicuous, giving some bias to the sample collected. Birds were collected here on the afternoon of 10 September.

Westport, Minnesota, is approximately 190 miles northwest of Eau Claire. The Westport TV tower rises 1,100 feet above a low hill on the edge of the prairie. The Eau Claire tower is 1,000 feet high within the city, which is in a deciduous woodland area about 50 miles east of the Mississippi River.

RANDOMNESS OF THE SAMPLES

Tordoff and Mengel (1956) pointed out that interspecific comparisons

from TV tower samples should be approached with extreme caution as virtually nothing is known about the relative vulnerability of different species with regard to striking towers. Furthermore, nothing is known as to relative tendencies of species to strike towers under different conditions at different times and places, and also to the possibility of different species migrating at different altitudes. The species composition can change considerably at any one location through the course of the migration season and before a truly sound appraisal of the progress of these migrants can be made, many samples taken at different times from each locality and from many different localities are going to be needed. In addition, the sex and age composition of any one species on any one night can be radically different from samples on other nights (unpublished data, Minnesota Museum of Natural History), and these sex and age data are necessary to the drawing of conclusions about the timing, progress, composition, and routes of migrations.

RESULTS

The number and percentage of the total for each species from each tower is presented in Table 1. The quite different species composition of the two samples is obvious; the Red-eyed Vireo, Tennessee, Bay-breasted, and Chestnut-sided Warblers make up nearly 60 per cent of the total from WEAU, while the Swainson's Thrush, Yellow Warbler, Sora, and Red-eyed Vireo make up nearly 60 per cent of the total KCMT sample.

The WEAU sample is quite representative of the species composition of many other Eau Claire kills (Kemper, 1958, 1959, 1964, and unpublished data). The typical species composition of kills at Eau Claire, Wisconsin, is usually quite similar to reported kills from many other localities east of the Mississippi River: Illinois (Brewer and Ellis, 1958; Parmalee and Parmalee, 1959); Tennessee (Laskey, 1960); and Georgia (Johnston, 1955; Johnston and Haines, 1957). The KCMT sample, on the other hand, is unusual in many respects as compared to other reported kills. However, with the exception of the large numbers of thrushes, Soras, and Yellow Warblers, the kill at KCMT is most similar to kills in Kansas (Tordoff and Mengel, 1956). The KCMT kill of Yellow Warblers and Soras is apparently the highest total reported for each species. It is difficult to generalize about the Swainson's Thrush as this species has been variously important at certain times at many locations, however, never associated with the same species as at KCMT. The same can be said of the Red-eyed Vireo, a species which through the wooded portion of the United States east of the Mississippi River seems to be associated in migration with many of the woodland warblers, but across the prairie with a different species association as shown by this KCMT kill and kills in Kansas. The Catbird has been variously important at different places

TABLE 1

SPECIES COMPOSITION OF TWO TV TOWER KILLED SAMPLES FROM THE SAME NIGHT (9–10 SEPTEMBER 1962)

WEAU TV Eau Claire, Wisconsin		Species	KCMT TV Westport, Minnesota	
Number	Per cent of total		Number	Per cent of total
279	32.2	Red-eyed Vireo—*Vireo olivaceus*	54	10.2
98	11.3	Tennessee Warbler—*Vermivora peregrina*	2	0.4
73	8.4	Bay-breasted Warbler—*Dendroica castanea*	0	0.0
63	7.3	Chestnut-sided Warbler—*Dendroica pensylvanica*	0	0.0
50	5.8	Flycatchers*—(Tyrannidae)	20	3.9
31	3.6	Connecticut Warbler—*Oporornis agilis*	0	0.0
28	3.2	Blackpoll Warbler—*Dendroica striata*	1	0.2
25	2.9	Swainson's Thrush—*Hylocichla ustulata*	128	24.2
25	2.9	Veery—*Hylocichla fuscescens*	23	4.4
24	2.8	Ovenbird—*Seiurus aurocapillus*	12	2.3
22	2.5	Blackburnian Warbler—*Dendroica fusca*	0	0.0
19	2.2	American Redstart—*Setophaga ruticilla*	0	0.0
16	1.8	Canada Warbler—*Wilsonia canadensis*	0	0.0
14	1.6	Yellow Warbler—*Dendroica petechia*	74	14.0
11	1.3	Black-and-White Warbler—*Mniotilta varia*	1	0.2
11	1.3	Rose-breasted Grosbeak—*Pheucticus ludovicianus*	6	1.1
11	1.3	Scarlet Tanager—*Piranga olivacea*	0	0.0
10	1.2	Magnolia Warbler—*Dendroica magnolia*	0	0.0
10	1.2	Cape May Warbler—*Dendroica tigrina*	0	0.0
7	0.8	Wilson's Warbler—*Wilsonia pusilla*	7	1.3
7	0.8	Yellowthroat—*Geothlypis trichas*	6	1.1
5	0.6	Goldenwing Warbler—*Vermivora chrysoptera*	0	0.0
5	0.6	Philadelphia Vireo—*Vireo philadelphicus*	0	0.0
4	0.5	Nashville Warbler—*Vermivora ruficapilla*	6	1.1
4	0.5	Gray-cheeked Thrush—*Hylocichla minima*	12	2.3
3	0.3	Northern Waterthrush—*Seiurus noveboracensis*	19	3.6
2	0.2	Bobolink—*Dolichonyx oryzivorous*	11	2.1
2	0.2	Parula Warbler—*Parula americana*	0	0.0
2	0.2	Black-throated Blue Warbler—*Dendroica caerulescens*	0	0.0
1	0.1	Black-throated Green Warbler—*Dendroica virens*	0	0.0
1	0.1	Yellow-throated Vireo—*Vireo flavifrons*	0	0.0
1	0.1	Indigo Bunting—*Passerina cyanea*	0	0.0
1	0.1	Eastern Kingbird—*Tyrannus tyrannus*	0	0.0
0	0.0	Solitary Vireo—*Vireo solitarius*	1	0.2
0	0.0	Warbling Vireo—*Vireo gilvus*	1	0.2
0	0.0	Yellow-headed Blackbird—*Xanthocephalus xanthocephalus*	1	0.2
0	0.0	Wood Thrush—*Hylocichla mustelina*	2	0.4
0	0.0	Baltimore Oriole—*Icterus galbula*	19	3.6
0	0.0	Mourning Warbler—*Oporornis philadelphia*	31	5.9
0	0.0	Catbird—*Dumatella carolinensis*	34	6.4
0	0.0	Sora—*Porzana carolina*	57	10.8
865		Total	528	

* Flycatchers are being saved for further analyses and identification.

and times. We believe the occurrence of such high numbers of Mourning Warblers at KCMT and in Kansas, and their extreme rarity at other localities, is strongly suggestive of their migration route and species association.

The kill of Nashville Warblers at KCMT is significantly higher (Chi-square, 0.05 level) than at WEAU and, along with the numbers killed in Kansas and their relative scarcity at other locations, is indicative of their more western migration route. The Nashville Warbler also seems to be more common at Eau Claire than at other localities (except Kansas). The kill of Wilson's Warblers at KCMT is one of the highest reported as a percentage of the total, although it is not significantly different from the total at Eau Claire (Chi-square, 0.05 level) on the same night.

The presence of a fair number of Ovenbirds and Northern Waterthrushes at KCMT would seem to indicate an extremely broad front of migration for these species as they have been present in so many other reported kills. The kill of Baltimore Orioles is apparently the largest reported for this species.

It is hoped that this brief summary and the peculiarities and consistencies noted for certain species will stimulate continued interest in these mortalities. Such study will eventually help to piece together a much more complete account of these nocturnal migrations. More sex and age data along with the numbers and percentages of species are needed. Continued compilation of such material will yield information on many aspects of migration that is impossible to gather in any other way.

SUMMARY

The numbers and percentages of species killed on the same night of migration (9–10 September 1962) at Eau Claire, Wisconsin in a deciduous woodland area, and 190 miles to the northwest at Westport, Minnesota at the edge of the prairie, are compared. The species composition of the Eau Claire kill is typical for that area and similar to many other reported kills east of the Mississippi River. The Westport, Minnesota sample is a very unusual one as compared to other samples as the Yellow Warbler, Sora, Mourning Warbler, and Baltimore Oriole were killed in unusually high numbers. Just as obvious at this prairie-edge tower was the lack of woodland warblers so common to nearly all other reported TV tower mortalities.

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